REMARKS

Reconsideration and allowance in view of the foregoing amendment and the following remarks are respectfully requested.

Claims 1, 2, 4, 6, 7, 10, 11, 18-22 and 24-32 are now pending.

Claims 1, 2, 4, 6, 7, 10, 11, 18-22 were rejected on the grounds of Res Judicata. The Examiner took the position that because these claims are identical to claims affirmed on appeal, applicant is not entitled to further adjudication on the same record. Applicant respectfully disagrees.

The Court of Custom and Patent Appeals (CCPA), held that because the manual of Patent Examining Procedure Section 706.03(w) provides that the Res Judicata rejection "should only be used when the earlier decision was a final, appellate one, such as a Board of Appeals decision *where the time limits for further remedies has expired*" (emphasis added). Applicant has the right to file a continuation application following an adverse Board of Appeals decision within the time allowed for further appeal and applicant has the right to have that application examined. Application of KAGHAN, 387 F.2d 398, 400 (CCPA, 1967). A holding of Res Judicata without reliance on any other ground of rejection is not an examination on the merits. Therefore, applicant is entitled to further adjudication so that the Examiner must fully consider the patentability of the claims over the prior art. Because the continuation application filed in this case was filed before the time limit for further remedies had expired, it is submitted that Res Judicata is inappropriate.

Furthermore, a Res Judicata rejection is only appropriate where the claims are rejected over the same art and the same claims are presented. In view of the Examiner's comments regarding Mase, presented for the first time in the Examiner's Official Action, claims 1 and 18 have been amended above to avoid the Examiner's apparent misunderstanding of the meaning and scope of the claims, so that claims 1 and 18 can be

fully understood. It is therefore respectfully submitted that the Examiner's rejection on the ground of Res Judicata has been mooted by the modification to claims 1 and 18 presented hereinabove. It is also respectfully noted that the newly presented claims 24-29 were not rejected on the grounds of Res Judicata and therefore are properly adjudicated in this application in any event. Reconsideration and withdrawal of the rejection on the ground of Res Judicata is therefore requested.

Pursuant to the Examiner's request, translations of the Hamano and Yokota articles were submitted with the September 30, 2003 Supplemental Information Disclosure Statement and translations of the Alumina Products High-Purity/Fine Alumina article and the article entitled Development of Advanced Alumina "Sumicorundum" are attached hereto. The Rule 17(p) fee in lieu of certification is submitted herewith. As discussed in the preliminary remarks submitted on August 19, 2003, these articles are submitted to refute the Examiner's argument that Suzuki establishes the equivalence of porosity and particle size. Indeed the Examiner's summary conclusion that Suzuki teaches that employing larger particles yields a layer that is more porous it is not universally true and thus the Examiner's characterization of Suzuki as providing such a teaching is improper.

Claims 1, 2, 4, 6, 7, 10, 11, 18-22, 26 and 29 were rejected under 35 USC 103(a) as being unpatentable over Mase et al in view of Suzuki et al. Applicant respectfully traverses this rejection.

The Examiner continues to characterize Mase as disclosing a "boundary layer" 54 sandwiched by an insulating layer "50" and an electrolyte layer "28". It is respectfully submitted that the Examiner has mischaracterized the disclosure of Mase and that a fair reading of Mase by one skilled in the art would not produce the invention claimed. Indeed, contrary to the Examiner's characterization of Mase, Mase discloses in no uncertain terms that layer 54 is an insulating layer and layer 50 is a gas tight ceramic layer disposed between heater 44 and electrolytic layer 20. As such Mase does not teach

providing a boundary layer between an insulating layer and electrolytic layer, much less a boundary layer having an average sintered particle size larger than that of the electrolytic substrate layer.

The Examiner's reliance on Suzuki as allegedly teaching that layer 54 should be more porous than the electrolytic substrate layer or the insulating substrate layer is not well taken. Indeed, it is respectfully submitted that it would not have been obvious from Suzuki to the skilled artisan to modify Mase in the manner suggested by the Examiner.

According to Suzuki '112, as shown in Figs. 1 and 2, an oxygen concentration sensor 1 is molded into a cup-shaped body (refer to col. 2, line 25). A first electrode 2 and a second electrode 3 are formed on outer and inner surfaces of the cup-shaped sensor body 1, respectively (col. 2, lines 33-38). A first coating layer 4 is formed on the outer surface of the first electrode 2 (col. 2, lines 38-42), a second coating layer 4' is formed on the outer surface of the first coating layer 4 (col. 2, lines 43-47), and the pores of the second coating 4' are coarse (larger) than the pores of the first coating 4 (col. 2, lines 47-53).

When considering the possibility of combining Mase '456 with Suzuki '112, a first question would arise with respect to the type of gas sensing element. Mase '456 is a multilayered type consisting of a plurality of laminated planar substrate layers, whereas Suzuki '112 is a non-multilayered type (i.e. cup-shaped type) sensor. One of ordinary skill in the art would not consider directly employing the cup-shaped sensor body arrangement of Suzuki for the multilayered type sensor of Mase.

Furthermore, a second question would arise with respect to the location of the coarse layer. The coarse coating layer 4' of Suzuki '112 serves as the outermost layer of the cup-shaped sensor body. If one of ordinary skill in the art tries to use the coarse coating layer 4' of Suzuki '112 for the multilayered type sensor of Mase '456, the coarse coating layer 4' would be positioned at the outermost side of the sensor body. In other words, one of ordinary skill in the art would not consider using the coarse coating layer 4'

of Suzuki '112 as a boundary layer disposed between two substrate layers of the multilayered sensing element.

Additionally, a third question would arise with respect to the method for forming the coarse layer. The coarse coating layer 4' of Suzuki '112 is formed by plasma injection-welding (col. 2, line 41). If it is required to use the plasma injection-welding for forming the boundary layer, one of ordinary skill in the art would not consider using the coarse coating layer 4' of Suzuki '112 for the boundary layer of the multilayered type sensor due to the fundamental differences in their manufacturing processes.

Finally, a fourth question would arise with respect to the applicability of the coarse layer. The coarse coating layer 4' of Suzuki '112 is disclosed as one of the constituent portions peculiar to the cup-shaped type sensing element. In addition, Suzuki does not teach the use of coarse coating layer 4' as being applicable to other types of sensing elements. Thus, the Suzuki's coarse coating layer would only "obviously" be used in a cup-shaped type sensor as disclosed in Suzuki '112.

From the foregoing, the Examiner's rejection relying on the combination of Mase '456 and Suzuki '112 is improper under 35 USC 103 and one skilled in the art would conclude that incorporating the coarse coating layer 4' of Suzuki '112 as a boundary layer in Mase '456 is not logical for the above-described technical reasons. Furthermore, no motivation to combine these references can be found from the disclosures of these references in the absence of applicant's disclosure.

In response to applicant's argument that Mase does not disclose a boundary layer between electrolytic and insulating layers, the Examiner has first argued that applicant's claim does not require that the boundary layer be immediately between the electrolytic layer and the insulating layer. Claims 1 and 18 have been amended to explicitly recite the fact that the boundary layer is indeed immediately between the electrolytic and insulating layers.

The Examiner also argues that layers 34 and 54 are made of alumina or spinel and are more porous than the neighboring layers in order to minimize thermal stress, citing column 6, line 50 to column 8, line 68. Applicant disagrees. Mase advises that insulating layer 34 may comprise alumina or spinel or ceramics whose major component is borosilicate glass or mollite and are porous. This passage does not, however, describe the composition of layer 54 or characterize the porosity of layer 34 or 54 as greater than the neighboring layers. Therefore, the Examiner has mischaracterized the disclosure of Mase in regard to layers 34 and 54. In regard to insulation layer 54, Mase does not disclose the composition of that layer, contrary to the Examiner's mis-representation on page 4 of the Official Action. Moreover, in regard to layer 34, layer 34 is not immediately between an electrolyte layer and an insulating layer. Indeed, the limitation of claims 1 and 18 to a boundary layer disposed immediately between an insulating layer and an electrolytic substrate layer precludes the Examiner's conclusion that layer 34 is a boundary layer as claimed.

In view of the foregoing, it is respectfully submitted that Mase does not disclose a laminated structure comprising *inter alia* an insulating layer, a boundary layer and an electrolyte layer without any intervening structure. Mase discloses only alternating electrolytic and insulating layers.

As there is no disclosure of the composition of layer 50 in Mase, the Examiner's summary conclusion that Mase meets the limitations of claims 26 and 29 is not well taken. Even if layer 50 is characterized as insulating, there is no teaching or suggestion of the composition recited in claim 26. It is further noted in this regard that claim 11 requires that the composition of the boundary layer be different from the composition of the insulating substrate layer. The combination of features recited in these claims is no where taught or suggested in the art applied by the Examiner.

Claims 24 and 27 were rejected under 35 USC 103(a) as unpatentable over Mase in view of Suzuki and Sugino and Tatumoto. Claims 25 and 28 were rejected under 35

USC 103(a) as unpatentable over Mase in view of Suzuki and Watanabe and Ikezawa. Applicant respectfully traverses these rejections.

These claims are submitted to be patentable over the primary combination of Mase and Suzuki for the reasons advanced above. The Examiner's further reliance on the tertiary references does not overcome the deficiencies of the primary combination noted above. It is further respectfully submitted that the Examiner's summary conclusion that it would "obvious" to adopt selected characteristics of the tertiary references is improper under 35 USC 103.

It is clear that the initial burden of establishing a basis for denying patentability to a claimed invention rests upon the Examiner. In re Piasecki, 745 F. 2d 1468, 223 USPQ 785 (Fed. Cir. 1984). In establishing a *prima facie* case of obviousness under 35 U.S.C. § 103, it is incumbent upon the Examiner to provide a reason why one of ordinary skill in the art would have been led to arrive at the claimed invention from the prior art. Ex parte Clapp, 227 USPQ 972 (BPAI 1985). To this end, the requisite motivation must stem from some teaching, suggestion or inference in the prior art as a whole or from the knowledge generally available to one of ordinary skill in the art and not from applicant's disclosure. See, for example, Uniroyal, Inc. v. Rudkin-Wiley Corp. 837 F.2d, 7 USPQ 2d 1434 (Fed. Cir. 1988).

Rejections based on 35 USC §103 must rest on a factual basis with these facts being interpreted without hindsight reconstruction of the invention from the prior art. The Examiner has initial duty of supplying the factual basis for the rejection. The Examiner may not resort to speculation, unfounded assumption or hindsight reconstruction to supply deficiencies in the factual basis. See In re Wanery, 379 F.2d 1011, 1017, 154 USPQ 173, 177-78 (CCPA 1967).

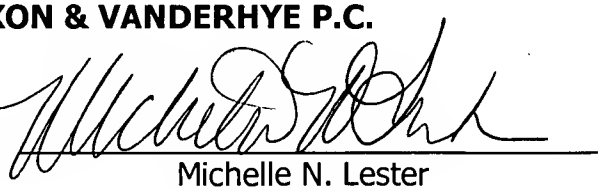
Furthermore, the Examiner's statement that "Tatumoto discloses alumna particles with a size which is very close to applicant's claimed particle size" is not well taken. In this regard, it is noted that, a particle size of 3 microns is 30% larger than the 2.3

microns particle size identified by the Examiner, which is not "very close". Further, the Examiner's suggestion that the incorporation of the particles taught in Tatumoto is "the incorporation of known features from analogous prior art functioning as expected" is completely unsupported by the record here. As noted above, the Mase '456/Suzuki '112 combination does not teach or suggest the provision of a boundary layer immediately between a solid electrolytic substrate layer and an insulating substrate layer without any other intervening layer, much less an assembly wherein the boundary layer has an average sintered particle size larger than that of the solid electrolytic substrate layer. The alumina particles identified by the Examiner in Tatumoto are not used to form a boundary layer as claimed by applicant or an insulating layer as disclosed in Mase. Rather, the alumina starting material identified by the Examiner in column 8 is for the sheet 50 for the heater which is not a sheet disposed between layers, so that it would not obviously be adapted for layers 34 and 54 of Mase. Moreover, even if adopted for those layers would not teach suggest a layer in the combination claimed in claim 1.

All objections and rejections having been addressed, it is respectfully submitted that the present application is in condition for allowance and an early Notice to that effect is earnestly solicited.

Respectfully submitted,

NIXON & VANDERHYE P.C.

By: 

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